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EXAMINER

LEWIS, DAVID LEE

ART UNIT	PAPER NUMBER
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2629

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06/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/781,023

Applicant(s)

SCHUBERT ET AL.

Examiner

David L. Lewis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

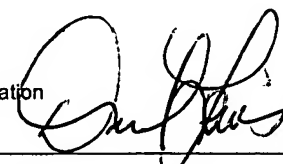
- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.



DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoshima et al. (6271806) in view of Cok et al. (6881946).**

As in claim 1, Motoshima et al. teaches of a modular graphics paneled assembly, figure 1 and 2,

comprising: a first modular block, figure 2B item 101,

including a display surface, figure 2A item 102,

an edge portion defining at least one flat surface, figure 2B item 101 (edge), figure 4A item infrared port of side,

first contacts for power distribution, figure 2B item 106,

and second contacts for signal distribution located adjacent said at least one flat surface, figure 2B item 105

However Motoshima et al. is silent as to. and a mechanical interlock portion formed on the edge surface, figure 3 item 16.

Cok et al. teaches of said mechanical interlock portion shaped in a way that allows said first modular block to be connected or disconnected from structure associated with another modular block by moving one of said blocks in a direction substantially perpendicular to said display surface, and said mechanical interlock portion also shaped to prevent said first modular block from being connected or disconnected from structure associated with another modular block by motion in a direction substantially parallel to said display surface, **column 2 lines 54-61, figure 3 & 5.** wherein as shown in figures 3 & 5, any one of the four panels that make up the group cannot be removed from the group in a direction substantially parallel to the display surface due to the interdigitation of the edges.

Cok et al provides motivation to modify the device of Motoshima to achieve an enhanced display having a seam that is less visible to the human eye while also serving to perform a mechanical locking function, column 3 lines 1-15.

Therefore it would have been obvious to the skilled artisan at the time of the invention to combine the interlocking modular display of Cok et al. with the modular display of Motoshima because Cok suggests the interlocking feature improves the visibility of seamlessness and also serves to lock the display structure avoiding a collapsing of the structure, serving to enhance the display, as found in claim 1.

As in claim 2, Motoshima et al. teaches of further comprising a second modular block, where the connection portion of said first modular block interlocks with a corresponding connection portion of said second modular block, and the first contacts of said first modular block are connected to the first contacts of said second modular block, figure 2B items 105 and 106.

As in claim 3, Motoshima et al. teaches of a modular graphics paneled assembly, figure 1 and 2,

comprising: a first modular block, including a display surface, an edge portion defining at least one flat surface, figure 2B item 101,

first contacts for power distribution and second contacts for signal distribution, located on said at least one flat surface, figure 2B item 105 and 106, column 5 lines 1-10,

However Motoshima et al. does not explicitly teach of a mechanical interlock portion formed on the edge surface, further comprising and tristate buffers, connected to said second contacts, allowing each of said second contacts to be used to used as either input or output contacts depending on an orientation of a modular blocks.

However Motoshima et al. teaches of bidirectional infrared ports, **figure 2B item 105**, wherein said ports function as both input and output ports to perform bilateral signal transactions depending on a control signal. The bidirectional port has an input, a control, and output. Therefore the bidirectional infrared ports are the functional equivalent of tristate buffers, wherein the input and output function are responsive according to the control signal. A tristate buffer has two inputs, one data and one control, and function like bidirectional ports in a given direction.

Cok et al. teaches of said mechanical interlock portion formed on an edge surface area, column 2 lines 54-61, figure 3 & 5.

Cok et al provides motivation to modify the device of Motoshima to achieve an enhanced display having a seam that is less visible to the human eye while also serving to perform a mechanical locking function, column 3 lines 1-15.

Therefore it would have been obvious to the skilled artisan at the time of the invention to combine the interlocking modular display of Cok et al. with the modular display of Motoshima having the functional equivalent of tristate buffers in said bidirectional infrared data ports, because Cok suggests the interlocking feature improves the visibility of seamlessness and also serves to lock the displays, serving to enhance the display, as found in claim 3.

As in claim 4, Cok et al. teaches of further comprising a frame assembly, surrounding said first and second modular blocks, and at least one portion of said frame assembly connected to said first and second contacts, figure 9 item 9, wherein Cok suggests the use of said frame to bind a modular array of displays.

As in claim 5, Cok et al. teaches of wherein said assembly includes four of said modular blocks arranged into a substantially rectangular shape, figure 3, 10, 11. wherein any known shape is taught

As in claim 6, Cok et al. teaches of wherein said frame assembly includes Universal serial bus circuitry, receiving a universal serial bus signal, and communicating said Universal Serial Bus signal to said second contacts, column 3 lines 55-60, Motoshima et al., figure 1 items 200 and 300, wherein having universal data connections would have been an obvious design choice in view of Motshima et al. teaching of power and control being feed to the side of the display comprising the frame as suggested by Cok. Wherein the frame of Cok and the feed of Mooshima combine to provide conventional data ports as known in the art, such as the USB port. The USB port is an industry standard means for connecting serial devices to a host PC and Motoshima et al. teaches of connecting the modules serially.

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As in claim 7, Motoshima et al. teaches of wherein each of said modular blocks includes a plurality of light emitting diodes, column 7 lines 1-8, Cok, column 4 lines 55-60.

As in claim 10, Motoshima et al. teaches of a modular display unit, **figure 1 and 2,**

comprising: a symmetrical housing, **figure 2B item 101,**

having a front surface with a controllable display portion thereon, **figure 2A item 102,**

and edge portions with mechanically interlocking portions thereon, **figure 2B item 106**

each mechanically interlocking portion on one of said edge portions being sized and shaped to interlock with an edge portion associated with a different one of said housings, **figure 2B item 106,**

and said housing including a connector portion thereon supplying electrical connection and signal connection to said display portion, **2B items 106 and 105.**

However Motoshima et al. is silent as to said separating from other mechanically interlocking portions associated with other housing by motion in a direction substantially perpendicular to said front surface of said housing, and prevents said connecting and separating in a direction substantially parallel to said front surface of said housing,

Cok et al. teaches of said mechanical interlock portion shaped in a way that allows said first modular block to be connected or disconnected from structure associated with another modular block by moving one of said blocks in a direction substantially perpendicular to said display surface, and said mechanical interlock portion also shaped to prevent said first modular block from being connected or disconnected from structure associated with another modular block by motion in a direction substantially parallel to said display surface, **column 2 lines 54-61, figure 3 & 5.** wherein as shown in figures 3 & 5, any one of the four panels that make up the group cannot be removed from the group in a direction substantially parallel to the display surface due to the interdigitation of the edges.

Cok et al provides motivation to modify the device of Motoshima to achieve an enhanced display having a seam that is less visible to the human eye while also serving to perform a mechanical locking function, column 3 lines 1-15.

Therefore it would have been obvious to the skilled artisan at the time of the invention to combine the interlocking modular display of Cok et al. with the modular display of Motoshima because Cok suggests the interlocking feature improves the visibility of seamlessness and also serves to lock the display structure avoiding a collapsing of the structure, serving to enhance the display, as found in claim 10.

As in claim 11, Motoshima in view of Cok teaches of wherein said connector portion is formed on said edge portion, figure 2B item 106, Cok, figure 5 item 44..

As in claim 12, Motoshima in view of Cok teaches of wherein said connector portion is formed on each surface of said edge portion, figure 2B item 106, Cok, figure 5 item 44.

As in claim 13, Motoshima in view of Cok teaches of wherein said modular unit is formed with an outer perimeter having for substantially linear portions forming a substantially square outer perimeter, figure 9 item 52, and said connector portion is formed on each of said linear portions, figure 2B item 106, Cok, figure 5 item 44.

As in claim 14, Motoshima in view of Cok teaches of wherein said mechanically interlocking portion is formed of beveled edges which connect with other beveled edges, figure 2B item 106, Cok, figure 5 item 44, figure 10.

As in claim 15, Motoshima in view of Cok teaches of wherein said mechanically interlocking portion is formed of a specified shape to only connect to the units which have their top face is in the same direction, figure 2B item 106, Cok, figure 3 item 44.

As in claim 16, Motoshima in view of Cok teaches of further comprising tristate buffers, connected to said connectors, Motoshima et al. teaches of bidirectional infrared ports, **figure 2B item 105**, wherein said ports function as both input and output ports to perform bilateral signal transactions depending on a control signal. The bidirectional port has an input, a control, and output. Therefore the bidirectional infrared ports are the functional equivalent of tristate buffers, wherein the input and output function are responsive according to the control signal. A tristate buffer has two inputs, one data and one control, and function like bidirectional ports in a given direction.

As in claim 17, Motoshima teaches of display assembly, figure 3 and 10,

comprising: a plurality of modular units, each of said modular units being a symmetrical shape and having flat edges which interconnected with other modular units, **figure 1 and 2,**

said plurality of modular units arranged into an array and each of said modular units having an electrical connection which connects to another module unit, **figure 1, figure 2a items 105/106;**

However Motoshim fails to teach of said frame portion and said mechanical interlocking portion.

Cok et al. teaches of said mechanical interlock portion shaped in a way that allows said first modular block to be connected or disconnected from structure associated with another modular block by moving one of said blocks in a direction substantially perpendicular to said display surface, and said mechanical interlock portion also shaped to prevent said first modular block from being connected or disconnected from structure associated with another modular block by motion in a direction substantially parallel to said display surface, **column 2 lines 54-61, figure 3 & 5.** wherein as shown in figures 3 & 5, any one of the four panels that make up the group cannot be removed from the group in a direction substantially parallel to the display surface due to the interdigitation of the edges.

Cok et al provides motivation to modify the device of Motoshima to achieve an enhanced display having a seam that is less visible to the human eye while also serving to perform a mechanical locking function, column 3 lines 1-15.

Cok et al. further teaches of said frame portion, figure 9 item 52.

Therefore it would have been obvious to the skilled artisan at the time of the invention to combine the interlocking modular display of Cok et al. with the modular display of Motoshima because Cok suggests the interlocking feature improves the visibility of seamlessness and also serves to lock the display structure avoiding a collapsing of the structure, serving to enhance the display,

as found in claim 17. And further Cok suggests the use of a frame surrounding the modular display to additional add to the displays usefulness, as found in claim 17.

As in claim 18, Motoshima in view of Cok teaches of wherein each of said modular units has a substantially square shape, forming four edge portions defining the perimeter of the modular units, Cok et al, figure 3.

As in claim 19, Motoshima in view of Cok teaches of wherein said electrical connection is formed on each of said for edge portions, thereby allowing connection between the plurality of modular units and to the frame portion, Motoshima, figure 2a item 105/106.

As in claim 20, Motoshima in view of Cok teaches of wherein the frame portion includes electrical circuitry therein, Cok et al., figure 9 item 52.

As in claim 21, Motoshima in view of Cok teaches of further comprising a memory, within the electrical circuitry, providing information to be displayed on the modular units, Motoshima, figure 2b item 104.

As in claim 22, Motoshima in view of Cok of method, comprising: assembling a plurality of modular display panels into a desired shape, Motoshima, figures 1 and 2; determining positions of each of said display panels, and forming a map defining said positions, figures 1 and 2; and sending an overall display to said device of said desired shape, by using said map to determine which parts of the device should display which portions, Cok et al. as applied to claim 1 above, wherein said map feature is inherent to the multiple configuration modular display of both Motoshima and Cok.

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As in claim 23, Motoshima in view of Cok teaches of teaches of method, comprising: assembling a modular display panel by connecting a first portion of the display panel to a second portion of the display panel, figure 1 and 2; and mechanically preventing said panels from being connected unless light emitting surfaces of both display panels face in the same direction, Cok et al., as applied above in claims 1.

As in claim 24, Motoshima in view of Cok teaches of wherein said assembling comprises connecting multiple portions together by moving them in a direction substantially perpendicular to a surface of the modular display panels, and without moving them in any directions substantially parallel to the surface of the modular display panels, Cok et al., as applied above in claims 1.

2. **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motoshima et al. (6271806) in view of Cok et al. (6881946), further in view of Stasko (6844865).**

As in claim 8, Cok et al. teaches of wherein said connecting portions have a substantially alternative shape that allows said connecting to and separating from other connecting portions, column 3 lines 50-60, wherein while silent on having a substantially trapezoidal shape, it would have been a known design alternative, in view of Cok's suggestion for alternative shapes, and Stasko's teaching of a trapezoidal shape connector, figure 1b item 20.

As in claim 9, Motoshima et al. teaches of modular graphics paneled assembly, figures 1 and 2,

comprising: a first modular block, including a display surface, an edge portion defining at least one flat surface, **figure 2B item 101,**

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first contacts for power distribution and second structure for signal distribution, located on said at least one flat surface, **figure 2B items 106 and 105**, wherein the connectors are located on the flat edge peripheral portion of the display

a second modular block, **figure 4B item 101**,

and the first contacts of said first modular block are connected to first contacts of said second modular block, **figure 2B item 106**; wherein said edge surface includes the peripheral portion of the display comprising the power and signal connection, said power connection inherently comprising a mechanical interlock portion.

However Motoshia et a. is silent as to a second modular block, where the mechanical interlock portion of said first modular block interlocks with a corresponding mechanical interlock portion of said second modular block, having a mechanical interlock portion formed on the edge surface, **figure 2B item 106**

Motoshia et a. is silent as to and wherein said connecting portions have a substantially trapezoidal shape with first and second parallel sides, one of which is sides is longer than the other, and first and second sloped sides, extending between said first and second parallel sides.

Cok et al. teaches of said mechanical interlock portion, where the mechanical interlock portion of said first modular block interlocks with a corresponding mechanical interlock portion of said second modular block **column 2 lines 54-61, figure 3 & 5.**

Cok et al provides motivation to modify the device of Motoshima to achieve an enhanced display having a seam that is less visible to the human eye while also serving to perform a mechanical locking function, column 3 lines 1-15.

Cok et al. provides further motivation to modify the edge interlock portion into various known shapes, column 44-65.

Stasko's teaches of a substantially trapezoidal shape connecting portions, figure 1b item 20.

Therefore it would have been obvious to the skilled artisan at the time of the invention to combine the interlocking modular display of Cok et al. with the modular display of Motoshima because Cok suggests the interlocking feature improves the visibility of seamlessness and also serves to lock the display structure avoiding a collapsing of the structure, serving to enhance the display, as found in claim 9. Further it would have also been obvious to make the connecting portions substantially trapezoidal in shape because Cok et al. teaches of alternative shapes and Stasko illustrates an alternative shape of interlocking displays.

Response to Arguments

3. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

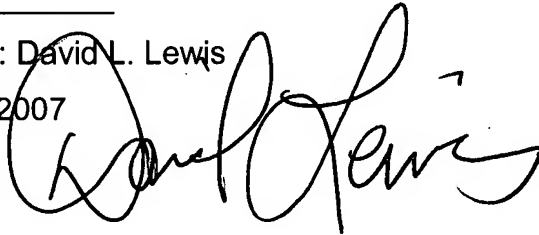
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8

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- to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.
5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis

June 11, 2007

A handwritten signature in black ink, appearing to read "David L. Lewis", is written over the printed name and date.